POLOTZKY, I. G.

Polotzky, I. G., and Philippov, T. S. - "On the Mechanism of the Depolarizing Action of the Ultra-Sound." (p. 198)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1947, Vol. 17, No. 2.

POLOTSKIY, I.G.; KHODOV, Z.L.

Ultrasonic interferometer for measuring elevated temperatures.
Sbor.nauch.rab.Lab.metallofiz. no.6:70-76 '55. (MLRA 9:7)
(Ultrasonic testing) (Thermometry)

POLOTSKIY, I. G., KHODOV, Z. L.

"Ultrasonic Interferometer for Measurements at High Temperatures"

an article in the book "Questions on the Physics of Metals and Metal Science", AS Ukr. SSR, Kiev, 1955, 151 pp.

So: Sum, No. 1102, 19 Oct 56

POLOTSKIY, I.G.; KHODOV, Z.L.

Investigation of the temperature dependence of adiabatic compressibility coefficients of salol, orthochloronitrobenzene, and thymol. Part 1. Sbor.nauch.rab Lab.metallofiz. no.4:87-94 '53. (MLRA 9:2)
(Benzene) (Thymol) (Salol)

POLOTSKIY, L. M., Cand Tech Sci (diss) -- "Investigation of the effect of basic technological parameters on the process of fine grinding of solid materials in a vibration mill". Moscow, 1960. 12 pp (Min Higher and Inter Spec Educ RSFSR, Moscow Inst of Fine Chem Tech im M. V. Lomonosov), 150 copies

(KL, No 14, 1960, 133)

ZABLONSKIY, K.I., kand.tekhn.nauk, otv.red.; BOROVICH, L.S., kand.tekhn.nauk, red.; BELYAYEV, M.S., inzh., red.; GENKIN, M.D., kand.tekhn.nauk, red.; ZAK, P.S., kand.tekhn.nauk, red.; KIST'YAN, Ya.G., kand.tekhn. nauk, red.; KUDRYAVTSEV, V.N., doktor tekhn.nauk, red.; MAL'TSEV, V.F., kand.tekhn.nauk, red.; POLOTSKIY, M.S., kand.tekhn.nauk, red.; ERLIKH, L.B., kand.tekhn.nauk, red.; NIKIFOROV, I.P., inzh., red.; KOMISSARENKO, A.R., tekhred.

[Design, construction, and analysis of drives; proceedings of the conference on problems in designing, constructing, and analyzing gear drives and flexible gearing, September 23-28, 1957] Raschet, konstruirovanie i issledovanie peredach; trudy konferentsii po voprosam rascheta, konstruirovaniia i issledovanii zubchatykh peredach i peredach gibkoi sviaz'iu 23-28 sentiabria 1957 g. Izd-vo Odesskogo politekhn.in-ta. Vol.1. 1958. 199 p. Vol.2. 1958. 94 p.
(MIRA 12:5)

1. Odessa. Politekhnicheskiy institut.
(Gearing)

POLOTSKIY, M.S., kandidat tekhnicheskikh nauk; PAVLOV, Z.P., kandidat tekhnicheskikh nauk.

Load capacity of skew gears having off-pitch-point engagement of the second type. [Trudy] TSNIITMASH 81:137-148 '56. (MLRA 9:12)
(Gearing)

POLOTSKIY, M.S., kandidat tekhnicheskikh nauk.

Dynamic loads on the teeth of straight-toot gears. [Trudy] TSNIITMASH 81:149-171 '56. (MLRA 9:12)

(Gearing, Spur)

ACCESSION NR: AP4023732 S/0114/64/000/003/0012/0016

AUTHOR: Polotskiy, N. D. (Engineer)

TITLE: Power characteristics of curved-axis diffusers

SOURCE: Energomashinostroyeniye, no. 3, 1964, 12-16

TOPIC TAGS: diffuser, curved axis diffuser, pump, multistage pump, hydraulic machine, pump outlet, rectangular section diffuser

ABSTRACT: Experimental investigations of the flow structure in the diffuser channels of multistage-pump outlets, as conducted in VIGM in 1959-61, are reported. An air-flow simulator was used (see Enclosure 1). The shapes of the four diffusers tested were determined by two parameters: the axis-curvature radius and the flare angle; the rectangular cross-section was investigated. The velocity and pressure fields were measured at the initial, two intermediate, and final sections of each diffuser. All tests were made at 50 and 30 m/sec at the initial

Card 1/2

ACCESSION NR: AP4023732

section which corresponded to Reynolds numbers 100,000 and 60,000. It was found that: (1) A straight-line channel behind the diffuser improves its power characteristics: the effective pressure drop increases, the efficiency grows, and the velocity field becomes less irregular; (2) A curvilinear channel, conversely, impairs the diffuser characteristics; (3) At a certain ratio of efficiencies (discussed in detail), the above findings are inapplicable. Orig. art. has: 6 figures, 24 formulas, and 2 tables.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 15Apr64	ENCL: 01
SUB CODE: PR	NO REF SOV: 002	OTHER: 000

Card 2/3

S/135/60/000/006/004/007
A104/A029

AUTHORS: Antonets, D.P.; Zhigula, A.V.; Polotskiy, R.G., - Graduate Engineers

TITLE: Production Line for Welding of 60 m^3 Capacity Railroad Tank Cars

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 6, pp. 14 - 17

TEXT: The authors describe the production method of steel butt-welded railroad tank cars of 61.2 m^3, inner diameter 2,800 mm and 10,300 mm long with no frame bumpers or side channel bars. The production line was developed in 1957 - 58 by the Zhdanovskiy zavod tyazhelogo mashinostroyeniya (Zhdanov Plant of Heavy Machine Building) in cooperation with the VPTI Leningradskogo Sovnarkhoza (Leningrad Sovnarkhoz VPTI). There are three parallel production lines with 14 points each. The tank is made of a 9,280 x 8,820 mm sheet assembled of five smaller sheets. The production process and equipment used are described. The installation in which welding of one side of the metal sheet is carried out, a general view of the tilter and the butt-welding unit are shown. The inside seams are welded with a mobile TC-17M (TS-17M) welder and the outside seams with an ABC (ABS) welding head. The bottoms of the tanks are fitted on a special welding stand. Finished seams are subjected to radioactive cobalt tests, after which var-

Card 1/2

ANTONETS, D.P., inzh.; ZHIGULA, A.V., inzh; POLOTSKIY, R.G., inzh.

Assembly line for the manufacture of 60 m^3 welded tanks. Svar. proizv. no.6:14-17 Je '60. (MIRA 13:7)

1. Zhdanovskiy zavod tyazhelogo mashinostroyeniya.
(Assembly line methods) (Tanks--Welding)

BOGDASHEVSKIY, Viktor Ivanovich; DONICH, Konstantin Konstantinovich [deceased]; IOFFE, Veniamin Isaakovich; KLEMPERT, Yakov Emmanuilovich; KOLYANKOVSKIY, Viktor Polikarpovich; KRAINSKIY, Abram Isayevich; POLOTSKIY, Solomon Gertsovich; SVIRSKIY, Solomon Vladimirovich; ANDREYEV, P.A., retsenzent; IVANOV, N.S., retsenzent [deseased]; POMAZKOV, N.S., retsenzent; KRAINSKIY, A.I., nauchn. red.; SHAKHNOVA, V.M., red.; KOROVENKO, Yu.N., tekhn. red.

[Accounting in shipbuilding and machinery manufacturing enterprises] Uchet na sudostroitel'nykh i mashinostroitel'nykh predpriiatiiakh. [By] V.I.Bogdashevskii i dr. Leningrad, Sudpromgiz, 1963. 502 p. (MIRA 17:3)

L 57064-65 EWT(m)/EWP(t)/EWP(k)/EWP(b) Pf-4 JD

ACCESSION NR: AP5013786 UR/0121/65/000/005/0034/0035
621.9.018.5.001.5

AUTHORS: Beylin, S. Ya.; Polotskiy, V. Ye. 16 B

TITLE: Tool feed direction during electric impulse machining of profiled surfaces

SOURCE: Stanki i instrument, no. 5, 1965, 34-35

TOPIC TAGS: electric impulse machining, spark machining, profile machining

ABSTRACT: The optimum direction of the tool during the finishing cut in electric impulse machining is evaluated to provide the minimum cutting time (minimum material removal). The minimum depth of the finishing cut when the tool is not perpendicular to the point being machined is given by

$$\Delta_a = [(H_1 + T_1) - (H_2 + T_2)] : \cos\alpha,$$

where α = angle between tool feed direction and normal to surface, H_1 and T_1, H_2 and T_2 - depth of irregularities and thickness of affected surface layer for rough and final cuts respectively. The total tool displacement necessary between the rough and final cuts is

$$B = \Delta_a + (b_1 - b_2) : \cos\alpha,$$

Card 1/2

L 57064-65

ACCESSION NR: AP5013786

where δ_1 and δ_2 - electrode clearance during rough and finish cuts respectively. Since α can change from 0-90° for a single profile, the tool should be placed at some angle to the profile to minimize the finishing depth of cut. A procedure for finding this optimum angle is developed for a profile made of arcs of circles. In this case the profile is calculated with respect to one coordinate system (all radii of curvature are drawn in an x-y coordinate system), the two points which result in the maximum deviation of the normal to the surface from the vertical on both sides of the vertical are determined, and the optimum tool angle then becomes

$$\alpha_{opt} = \frac{\alpha_A + \alpha_D}{2}$$

where A and D are the points where the normal deviates most from the vertical. The maximum α encountered during the cut will then be

$$\alpha_{max} = \frac{\alpha_D - \alpha_A}{2},$$

and this will provide minimum material removal necessary during the finishing cut with a fixed tool angle. The procedure is demonstrated on an example. Orig. art. has: 2 figures and 8 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: IE

NO REF SOV: 000 OTHER: 000

Card 2/2 dm

BEYLIN, S.Ya.; POLOVINKIN, V.Ye.

Tool-feed direction in electric-pulse machining of form surfaces.
Stan. i instr. 36 no.5:34-35 My '65. (MIRA 18:5)

POLOUS, Z.

The moss Dicranum acutifolium C. Jens. in Czechoslovakia.

P. 161, (Biologia) Vol. 12, no. 3, 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Acessions (EEAI) Vol. 6, No. 11 November 1957

SOLOMATIN, A.O. (s.Vsevolodo-Blagodatskoye, Sverdlovskaya obl.); GRIGOR'YEV, G.V.; FREYDZON, A.I.; KUZNETSOV, N.T.; POLOV, A. (Barnaul); RZHEVSKIY, B.M. (Moskva); DAVYDOV, V.D.

Calendar of nature. Priroda 51 no.3:125-128 Mr '62. (MIRA 15:3)

1. Karagandinskiy botanicheskiy sad AN Kazakhskoy SSR (for Grigor'yev). 2. Severo-Zapadnoye upravleniye gidrometsluzhby, Leningrad (for Freydzon). 3. Institut geografii AN SSSR, Moskva (for Kuznetsov). 4. Gosudarstvennyy astronomicheskiy institut im. P.K.Shternberga, Moskva (for Davydov). (Nature study)

POLOV, A.A.

Machinery--Construction

"Principles of modern methods of calculating durability of machine construction." S.D. Ponomarev, V.L. Biderman, K.K. Likharev, V.M. Makushin, N.N. Malinin, V.I. Fedosyev. Reviewed by A.A. Polov. Vest.mash. 31, no. 12, 1951.

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS, SEPTEMBER 1952. UNCLASSIFIED.

POLOV, A. V.

Organizatsiia i agrotekhnika kolkhoznogo pitomnika plodovoiagodnykh kul'tur v Altaiskomkrae /Organization and cultivation practices of the collective farm nursery for fruit and berry crops in Altai Territory/. Barnaul, Altaisk. kn-vo, 1953. 42 p.

SO: Monthly List of Russian Accessions, Vol 6 No 6 September 1953

POLCV, G. N. --

"The Working of Deposits of Mineral Resources." Dr Tech Sci, Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin, 1 Nov 54. (VM, 13 Oct 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institution (10)

SO: Sum No. 481, 5 May 55

.POLOV, K. P.

POLOV, K. P. "Investigation of the compression of the dynamic Range of Audiooscillations based on the principle of regulation of the Side Oscillations." Min Higher Education. Gor'Kiy Polytechnic Inst imeni A. A. Zhdanov. Chair of Radio Receiving Instruments. Gor'kiy, 1956. (Dissertation for the Degree of Candidate in Technical Science)

So: Knizhnaya Letopis', No. 18, 1956,

SOV/107-58-2-25/32

AUTHORS: Ageyev, D., Doctor of Technical Sciences; Malanov, V. and Polov, K., Candidates of Technical Sciences

TITLE: An LF Power Amplifier with a High Efficiency Factor (Usilitel' moshchnosti NCh s vysokim KPD)

PERIODICAL: Radio, 1958, Nr 2, p 45 - 47 (USSR)

ABSTRACT: Contemporary power amplification methods of sound frequency oscillations have low energetic indexes, since their efficiency coefficients at medium transmission levels amount to only 15 - 18%. In 1951, D.V. Ageyev suggested a pulse method with a higher efficiency factor. A few years later, R. Sharbon'ye suggested another pulse amplification method. However, both methods had a number of disadvantages. The authors of this paper devised a third method which maintains the advantages of the Ageyev and Sharbon'ye methods, but does not have their disadvantages. Figure 1 shows a simplified circuit diagram which explains the essential features of pulse amplification. In case there is no signal to be amplified, all anode circuits are blocked and do not require any power from the rectifier. The energetic advantages of this amplifier are shown in Figure 3, where it is compared

Card 1/2

with various other amplifiers. Figure 4 shows a variation of the pulse amplifier system. The authors state that several other versions may be used. Figure 5 shows a circuit diagram of a simplified practical application of a pulse amplifier for sound frequencies. It contains four "6P9" tubes and one "6N5S" tube. Measurements showed that the amplifier has an output of 2 watts at a frequency of 1 kc. The efficiency factor attains a calculated value of 84% after subtraction of all losses and it drops gradually when the signal level is reduced. At a signal level of 30% of the maximum, it was equal to 70%. The level of nonlinear distortions is relatively low (between 3-6%). There are three circuit diagrams, 1 diagram and 2 graphs.

1. Power amplifiers---Design 2. Power amplifiers---Performance

108-13-6-4/11

AUTHORS: Ageyev, D.V.,
Malanov, V.V.
Polov, K.P.

TITLE: A New Highly Effective Pulse Amplifier of Sound Frequency Oscillation (Novyy vysokoeffektivnyy impul'snyy usilitel' moshchnosti kolebaniy zvukovoy chastoty)

PERIODICAL: Radiotekhnika, 1958, Vol. 13, Nr 6, pp. 47-51 (USSR)

ABSTRACT: A new system for the realization of the pulse-amplification method is recommended, in which the advantages offered by the variants suggested by Ageyev and Charbonnier are retained without, however, retaining their disadvantages. First, the operation of the amplifier is studied. For the purpose of illustrating the advantages of the system dealt with the curves for the dependence of the degree of efficiency of the signal level are given for four cases: For the ordinary amplifier of class B, for the pulse amplifier developed by Ageyev, for that developed by Charbonnier, and for the amplifier developed by the authors. A variant of the practical circuit of the amplitude is given, after which the simplified circuit of an experimentally investigated amplifier is shown. The essential results

Card 1/2

A New Highly Effective Pulse Amplifier of Sound Frequency Oscillation

108-13-6-4/11

obtained by a preliminary examination of the latter are given. Measurement of the degree of efficiency of the amplifier on the anode circuit showed that, with a maximum level of the signal of 1 megacycle, the degree of efficiency attains 84%. However, as soon as the signal level is reduced at the transformer input (by which a two-cycle pulse modulation was realized with respect to duration), the degree of efficiency gradually decreased. Measurement of the nonlinear distortions of the sinusoidal signal showed that, within the transmission band of the amplifier, the level of distortions remains relatively low and amounts to 3-5%, in which case the higher values of the factor of nonlinear distortions correspond to the edges of the transmission band. By way of a summary it is said that the advantage offered by the amplifier investigated consists in the fact that its operational degree of efficiency is nearly 100% and that no pulse transformer is necessary in order to produce the amplifier in practice. There are 5 figures, and 5 references, 4 of which are Soviet.

SUBMITTED: April 29, 1957 (initially) and July 4, 1957 (after revision)

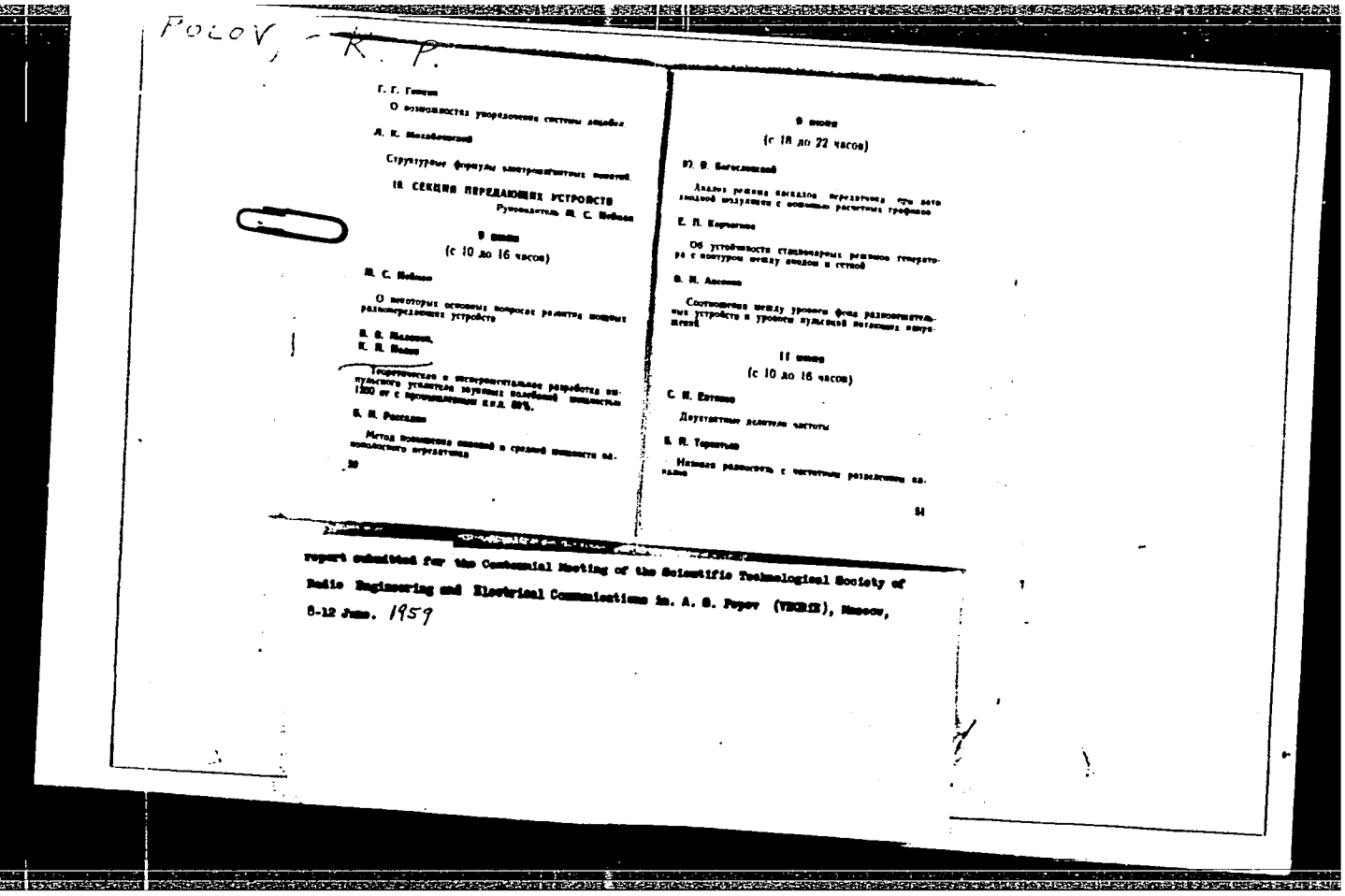
1. Pulse amplifiers--Performance 2. Pulse amplifiers---Circuits

Card 2/2

POLOV, K. P., D. V. AGEYEV and V. V. MALANOV

"Audio Frequency Power Pulse Amplifier."

Author's Certificates
Elektrosvyaz', 1958, N . 9, p. 78



POLOV, - R. P.

Г. Г. Гинкин

О возможностях упорядочения системы позывных

А. К. Михайловский

Структурные формулы электромагнитных помех

18. СЕКЦИЯ ПЕРЕДАЮЩИХ УСТРОЙСТВ

Руководитель М. С. Нейман

9 июня

(с 10 до 16 часов)

М. С. Нейман

О некоторых основных вопросах развития мощных радиопередающих устройств

В. Ф. Малинин,
К. Н. Нелин

Теоретическая и экспериментальная разработка импульсного усилителя мощных колебаний мощностью 1200 кт с промышленным к.п.д. 80%.

Б. Н. Рассказов

Метод повышения мощности в средней мощности автоколебательного передатчика

30

9 июня

(с 18 до 22 часов)

Ю. В. Благовещенский

Анализ режима анодных передатчика при работе анодной модуляции с основными расчетными графиками

Е. П. Корчагина

Об устойчивости стабилизирующих режимов генератора с контуром между анодом и сеткой

В. Н. Аксенов

Соотношения между уровнем фона радиопередающего устройства и уровнем пульсаций питающих напряжений

11 июня

(с 10 до 16 часов)

С. Н. Евтюшин

Двухсигнальное излучение частоты

Б. Н. Терентьев

Наименьшая разность с частотным разделением каналов

51

Report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNIRTE), Moscow, 8-12 June. 1959

86801
S/142/60/000/003/016/017
E192/E482

9,3220

AUTHORS: Malanov, V.V. and Polov, K.P.

TITLE: Generator of a Periodic Triangular Voltage Waveform

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1960, No.3, pp.407-409

TEXT: The system described produces a triangular waveform in which both the rising and the falling portions are linear functions of time. A simplified circuit diagram of the device is shown in Fig.1. The generator is actuated by means of negative rectangular voltage pulses which are applied to the control grid of the first tube. In order to explain the operation of the system, the instant of the termination of the rectangular pulse is first considered. At this instant the first tube becomes conducting and its anode current is equal to the sum of currents i_1 and i_2 which are indicated in Fig.1. Current i_1 flows through the capacitance C so that the voltage across it rises linearly at a rate i_1/C (see Fig.1). In order to ensure a linear voltage rise, it is necessary to stabilize the current i_1. This is achieved by stabilizing the anode currents of the first and the second tubes. The current of the first tube is stabilized by providing a large

S/142/60/000/003/016/017
E192/E482

Generator of a Periodic Triangular Voltage Waveform

negative current feedback so that this tube together with its elements R_1 and E_1 forms a current stabilizing bipole (Ref.1). The second tube and the elements R_2 and E_2 form a similar current stabilizing bipole. However, this differs from the preceding bipole in that apart from a constant voltage E_2 a variable voltage developed across the capacitance C is applied to the grid of the second tube. The influence of this voltage on the operation of this current stabilizing bipole is eliminated by applying a compensating voltage to the grid of the second tube. This voltage is equal in magnitude to the voltage across C and is opposite in phase. The compensating voltage is taken from the output of the third tube which is connected as a cathode follower. The input signal to the cathode follower is taken from the anode of the first tube, this signal being equal and opposite in phase to the voltage across the capacitance C. When a negative pulse is applied to its grid, the first tube is cut off and the current i_2 begins to flow C (as shown by the dotted line in Fig.1). Consequently, the voltage across the capacitances increases at the

S/142/60/000/003/016/017
E192/E482

Generator of a Periodic Triangular Voltage Waveform

rate i_2/C. Since i_2 is stabilized, the voltage across the capacitance changes linearly. In the final circuit, the voltages E_1, E_2 and E_3 can be derived from suitable potential dividers and a diode can be introduced for clamping the potential level at the grid of the first tube. The circuit was investigated experimentally and it was found that it is satisfactory and gives good linearity. There are 2 figures and 1 Soviet reference.

ASSOCIATION: Kafedra radiopriyemnykh ustroystv Gor'kovskogo politechnicheskogo instituta
(Department of Radio Receiving Devices, Gor'kiy Polytechnical Institute)

SUBMITTED: November 30, 1959

Card 3/4

86801

S/142/60/000/003/016/017
E192/E482

Generator of a Periodic Triangular Voltage Waveform

Fig. 1.

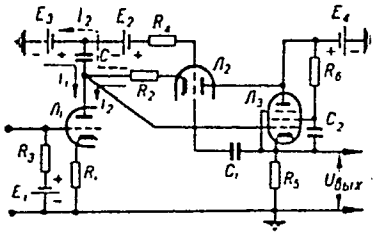


Рис. 1.

Card 4/4

9,2510

26804
S/142/61/004/002/006/010
E140/E485

AUTHORS: Malanov, V.V., Polov, K.P. and Belov, V.A.

TITLE: Experimental development of an audio-frequency pulsed power amplifier

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1961, Vol.4, No.2, pp.204-207

TEXT: The purpose of this brief note is to describe experiments for determining the usefulness of pulse amplification for high power audio signal amplification. The amplifier developed had a power of 1200 W and an efficiency about 50%, with quality corresponding to class-B amplifiers. Symmetrical pulse-width modulation was used, with triangular pulses, passing into pulse amplitude modulation at low levels. The output stages were triodes, operating with positive grid. At 1000 cps, the output power was 1250 W with an efficiency of 50%, while at moderate signal level the efficiency was 10%. This compares with the efficiencies of existing amplifiers of 30% at maximum signal level and 3 to 4% at medium levels. The experimental amplifier developed 4 to 5% nonlinear distortion, which the authors claim

Card 1/2

Experimental development of ...

can be eliminated by simple measures. The authors believe that the pulsed amplifier is less reliable than the corresponding conventional amplifiers, due to its greater complexity. On the other hand, gas-filled devices can be used for this application, thereby increasing the reliability. There are 6 figures and 6 Soviet references.

ASSOCIATION: NIRFI pri Gor'kovskom gos. universitete im. N.I.Lobachevskogo (NIRFI at Gor'kiy State University imeni N.I.Lobachevskiy)

SUBMITTED: May 20, 1960 (initially)
July 23, 1960 (after revision)

Card 2/2

MALANOV, V.V.; POLOV, K.P.

Power considerations in the operation of an audio pulse power amplifier. Radiotekhnika 16 no.5:47-50 My '61. (MIRA 14:6)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi.
(Amplifiers (Electronics))

VIKTOROV, Iv.; POLOV, TS.; PATRASHKOV, T.

Echinococcosis in a horseshoe kidney. Urologiia no.1:54-55'63.
(MIRA 16:7)

1. Iz Vysshego voyenno-meditsinskogo instituta, Sofiya.
(KIDNEYS —HYDATIDS)

VAKHTENGAYM, Yu. [Wachtenheim, J.]; SHMID, V. [Smid, V.]; POLOVA, M.
(Iglava, Chekhoslovakiya)

Silicoarthritis (Colint-Caplan syndrome). Klin.med. 38 no.12:
100-106 D '60. (MIRA 14:2)

(LUNGS—DUST DISEASES) (ARTHRITIS, RHEUMATOID)

TOLSTOV, Georgiy Pavlovich; POLOVINKIN, S.M., red.; YERMAKOVA, Ye.A., tekhn.red.

[Fourier series] Riady Fur'e. Izd.2., ispr. Moskva, Gos. izd-vo fiziko-matem.lit-ry, 1960. 390 p. (MIRA 13:7)
(Fourier's series)

POLOVCHENKO, I. G.

1360* Use of Carbon Blocks in Hearth Well and Hearth of Blast Furnaces. Sluzhba uglerodistykh blokov v leshchadi i gorne domennykh pechei. (Russian.) I. G. Polovchenko. *Stal'*, v. 15, no. 10, Oct. 1955, p. 891-894. 116

Because of their high thermal conductivity, carbon blocks facilitate the work and lengthen service life of the refractory lining. The use of bottom cooling of the hearth well and a deepened "dead" layer of metal is expedient in this setup. Use of radioactive tracers for following changes in hearth lining. Diagrams, graphs, photograph.

[redacted], I. D.

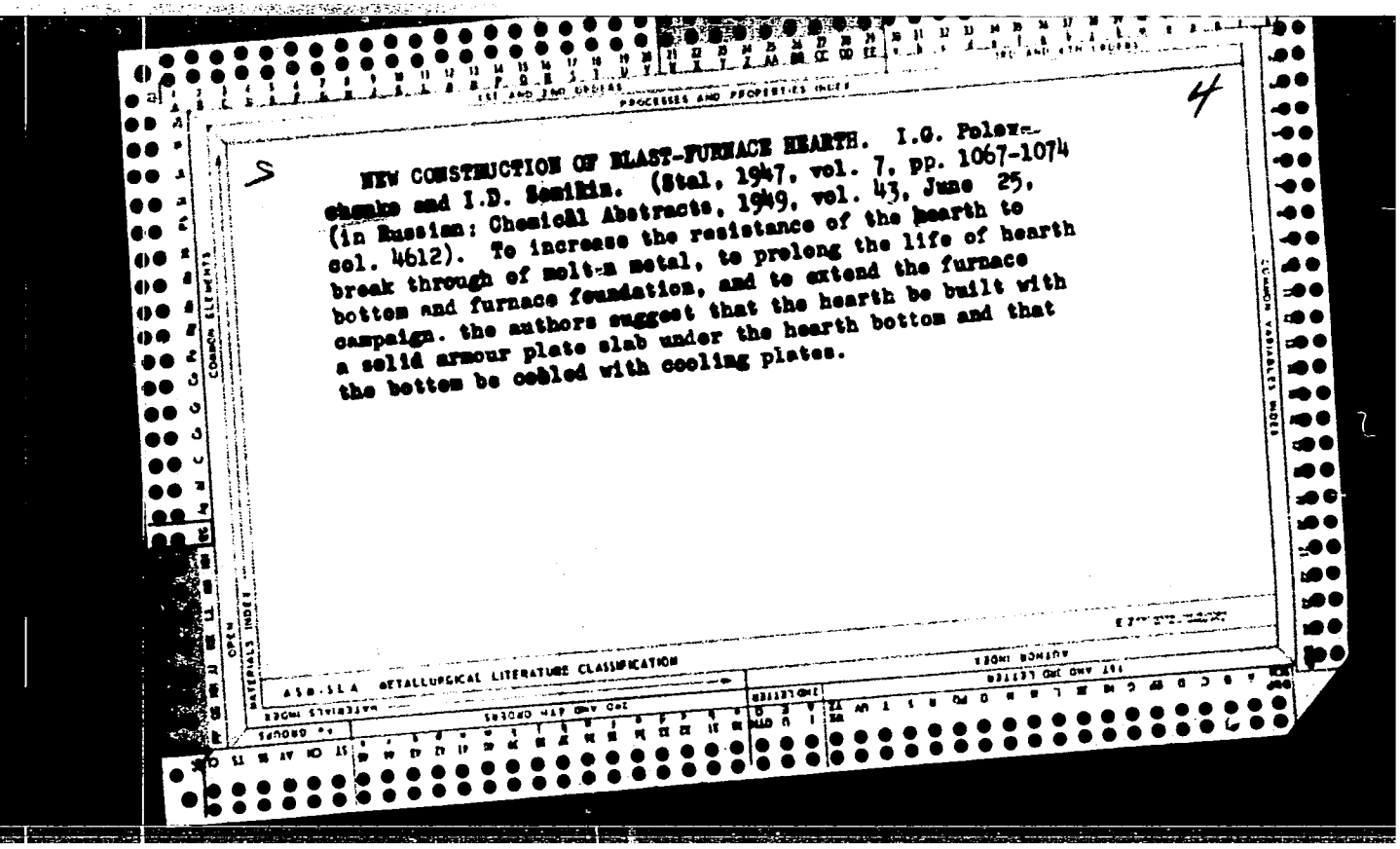
USSR/Engin
Metallurgy
Furnaces Dec 1947

"New Construction for Hearth of Blast Furnace," Prof I. D. Semikin, Dnepropetrovsk Metal Inst; I. . Golovchenko, Engr, Dneprodzerzhinsk Night Inst, 8 pp

"Stal'" No 12

Authors discuss new construction for hearths of blast furnaces. Hearth has heavy bronze base under the hearth block. Claim that with this arrangement stability of hearth is increased, service period of hearth block and foundations is lengthened, and operating period of the furnace increases.

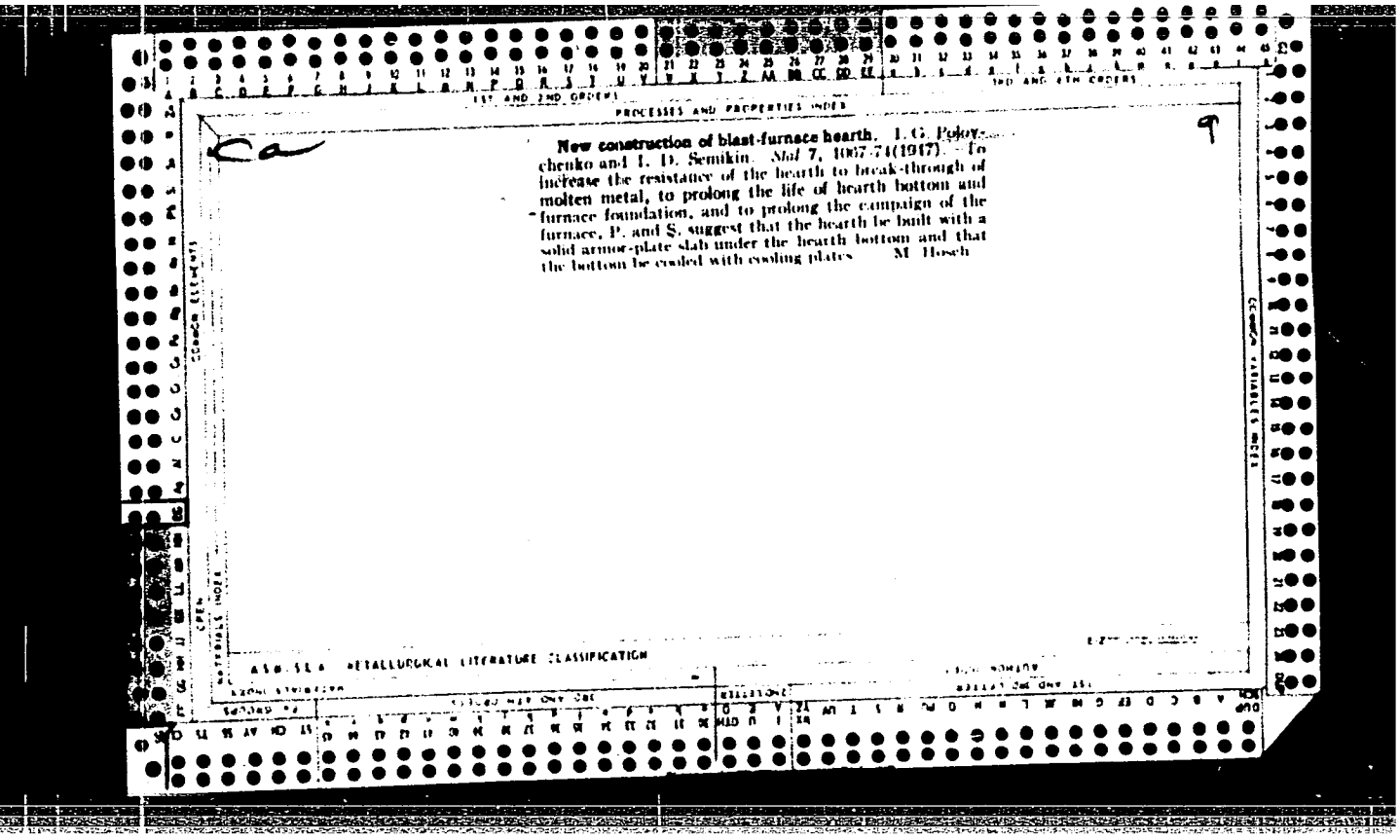
PA 57T29



4

S

NEW CONSTRUCTION OF BLAST-FURNACE HEARTH. I.G. Polewchenko and I.D. Semikin. (Stal, 1947, vol. 7, pp. 1067-1074 (in Russian: Chemical Abstracts, 1949, vol. 43, June 25, col. 4612). To increase the resistance of the hearth to break through of melt-n metal, to prolong the life of hearth bottom and furnace foundation, and to extend the furnace campaign. the authors suggest that the hearth be built with a solid armour plate slab under the hearth bottom and that the bottom be cooled with cooling plates.



PROCESSES AND PROPERTIES INDEX

Ca

9

New construction of blast-furnace hearth. I. G. Polovchenko and I. D. Semikin. *Stal* 7, 1067-74(1917). — To increase the resistance of the hearth to break-through of molten metal, to prolong the life of hearth bottom and furnace foundation, and to prolong the campaign of the furnace, P. and S. suggest that the hearth be built with a solid armor-plate slab under the hearth bottom and that the bottom be cooled with cooling plates. M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

POLOVCHENKO, I.G.; BERIN, A.L.

High-temperature nozzles for blast furnaces. Stal' 22 no.6: 497-498 Je '62. (MIRA 16:7)

1. Metallurgicheskiy zavod im. Dzerzhinskogo.
(Blast furnaces—Equipment and supplies)

POLOVCHENKO, I.G., kand.tekhn.nauk; GLADKIY, M.M., [illegible]

Errors in controlling the gas flow and the distribution of materials in the blast furnace top. Metallurg 6 no.11:3-8 N '61. (MIRA 14:11)

1. Nachal'nik agledomennoy laboratorii metallurgicheskogo zavoda im. Dzerzhinskogo (for Polovchenko). 2. Metallurgicheskiy zavod imeni Dzerzhinskogo (for Gladkiy).
(Blast furnaces)
(Gas flow)

POLOVCHENKO, I.G., kand. tekhn. nauk; UZLYUK, V.N., inzh.

Studying the surface movement of materials in the blast furnace top with the help of a radiometric level gage. Stal' 24 no.5:396-399 My '64. (MIRA 17:12)

1. Dneprovskiy metallurgicheskiy zavod im. Dzerzhinskogo.

L 22139-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)

ACC NR: AP6012947 SOURCE CODE: UR/0133/65/000/007/0585/0589

AUTHOR: Gotlib, A. D. (Doctor of technical sciences); Gimmel'farb, A. A. (Candidate of technical sciences); Yefimenko, G. G. (Candidate of technical sciences); Lapa, A. M. (Candidate of technical sciences); Polovchenko, I. G. (Candidate of technical sciences); Grishko, V. A. (Engineer); Chechuro, A. N. (Engineer); Kharchenko, N. M. (Engineer)

ORG: Dnepropetrovsk Metallurgical Institute (Dnepropetrovskiy metallurgicheskiy institut); Plant im. Dzerzhinskiy (Zavod)

63
J6
B

TITLE: Automatic control of the thermal state of a blast furnace

SOURCE: Stal', no. 7, 1965, 585-589

TOPIC TAGS: automatic control, blast furnace, algorithm, digital computer

ABSTRACT: The currently used methods for controlling the thermal state of a blast furnace have considerable deficiencies. There is considerable delay in receipt of data for control changes. Control should be performed directly on the change in thermal and reductive work of the gases, depending on their distribution in the charge and their movement through it. Theoretical principles for thermal control by composition of flue gas have been developed: a) minimum usage of coke for smelting cast iron of a given composition under given conditions of charge material and melting is defined, b) these parameters of the process are directly maintained at a level necessary to produce iron with minimum deviation from the given composition when all heat reserves of the process are used.

Card 1/2

ACC NR: AP6012947

On the basis of these considerations, an algorithm for control of the thermal state of a furnace was developed by the Lisichan Scientific Research Institute for Computers for use in the "Sovetchik Master" (SM-2) computer at blast furnace A of the plant imeni Dzerzhinskiy. This device is a digital computer which performs the mathematical and logical processing of input information on the basis of this algorithm.

During an 18-day trial period in May and a 36-day trial period in October-November, 1963, the computer recommended 108 changes in coke quantity and 144 changes in blast temperature. The results were positive; the thermal state of the furnace was mainly disrupted only when the recommendations were not fulfilled and during changes in loading without recommendation by the computer.

The recommendation control considerably increased consistency in output composition. Coke usage was decreased by 2.5%. The algorithm can be used only when the furnace is under regular use. Engineer S. Z. Nemchenko, Engineer A. S. Skorobagatov, Engineer M. I. Obuvalin, Engineer T. I. Slamchinskaya, Engineer A. M. Yunchik, Engineer Yu. M. Samarets, and Engineer D. S. Kalashnikov participated in the work. Orig. art. has: 3 figures and 2 tables. [JPRS]

SUB CODE: 13, 09 / SUBM DATE: none / ORIG REF: 004

133-12-1/26

AUTHOR: Polovchenko, I.G., Engineer.

TITLE: An Investigation of the Movement of Burden Materials in a Blast Furnace by Means of Radioactive Isotopes (Izucheniye dvizheniya materialov v domennoy pechi pri pomoshchi radioaktivnykh izotopov)

PERIODICAL: Stal', 1957, No.12, pp. 1057-1068, (USSR).

ABSTRACT: An investigation of the speed of burden descent in a blast furnace by means of radioactive cobalt enclosed in graphite or steel cylinders (to imitate coke and ore, respectively) as well as the movement of materials below the tuyere level is described. In order to carry out this investigation, one of the blast furnaces on the Dzerzhinsk Works was equipped with instruments for measuring radioactivity on 6 levels (1st level - just below the throat and 6th level - tuyere level, Fig. 3). Probes used for the introduction of radioactive material and for counters are shown in Figs. 1 and 2, respectively. The installation of Geiger counters in tuyeres is shown in Figs. 4 and 12. A preliminary determination of the coefficient of absorption of the radiation of Co^{60} by different burden material was carried out. The experimental set-up is shown in Fig. 5 and the results obtained in Fig. 6. Altogether

Cardl/610 experiments were carried out on the furnace; the activity

An Investigation of the Movement of Burden Materials in a Blast Furnace by Means of Radioactive Isotopes.

of sources varied from 18 to 320 mC. Six experiments were carried out with graphite cylindrical containers of which 4 with specific gravity 1 g/cm^3 (coke) were introduced at the top level and 2 with specific gravity 1.5 g/cm^3 were introduced at tuyere level. Four steel containers of specific gravity 4 g/cm^3 (ore) were introduced at the top of the furnace. Radioactive sources were introduced either at the wall or in the centre of the furnace. An example of changes in the detected radioactivity indicating the passage of the source through the second level is given in Fig.7, and the detected paths of the sources through the whole height of the furnace in Fig.8. The composition of gas in points through which the radioactive sources were passing was also determined. In order to check the results of the speed at descent of burden materials as determined using Co^{60}, an investigation of the burden descent in the upper part of the stack was carried out using a gas probe recording the gas composition in 6 points along the furnace radius. The above probe was additionally equipped with 1/2" tubes reaching the individual measuring points through which a thin wire was fed. The wire was pulled in with the descending

An Investigation of the Movement of Burden Materials in a Blast Furnace by Means of Radioactive Isotopes.

burden and thus the speed of descent could be measured. In some experiments, up to 30 m of wire was pulled down by the burden, so that reliable results on the speed of descent of burden in various points of the upper part of the stack were obtained. The results obtained are shown in Figs. 9 and 10. The results of measuring radioactivity indicating the movement of coke at and below the tuyere level are shown in Figs. 11 and 13. Changes in the radioactivity of iron on casting after the introduction of Co^{60} at the tuyere level are shown in Fig.14. Conclusions: 1) The velocity of movement of burden materials in the upper part of the stack at various points of its cross-section is non-uniform and changes with time. Materials situated in the zone next to walls possess the lowest velocity. The maximum velocity was more often observed at a distance of about 600 mm from the walls, and in the individual cases, in the centre of the furnace. 2) In the upper part of the stack, individual lumps of coke and ore overtake the mass of descending burden and are deflected from the walls towards the centre of the furnace. In the lower part of the stack, where the working space of the furnace

An Investigation of the Movement of Burden Materials in a Blast Furnace by Means of Radioactive Isotopes.

widens considerably, the zone of a more intensive movement of materials follows the furnace profile and the horizontal shift of lumps moving more rapidly changes direction (they are shifted towards walls). The horizontal shift of the individual lumps is caused by differences in the speed of descent of materials in neighbouring concentric zones of the cross-section of the working space of the furnace. Horizontal shift of cylindrical lumps of "coke" and "ore" of 40 mm diameter and 60 mm long reached 1 270 to 2 500 mm. 3) The rate of overtaking of coke by ore along the height from the top to the melting zone (bosh, lower part of the stack) is considerably smaller than the average value for the rate of overtaking along the height from the beginning of the melting zone to tuyere level. After melting, the ore part of the burden moves considerably faster than coke (about twice as fast). The time of the arrival to the tuyere level can be calculated from the formula:

$$T = \frac{H}{Wb \cdot K} ,$$

An Investigation of the Movement of Burden Materials in a Blast Furnace by Means of Radioactive Isotopes.

where H - the height from the burden level to the tuyere level, m ; Wb - speed of descent of burden in the throat, m/hr ; K - coefficient of velocity (0.5 for coke and 0.9 for ore; with decreasing driving rate, these coefficients should decrease). For the furnace investigated: H = 23 m and Wb = 6 and 8 m/hr the corresponding time of descent of coke was 7 hrs 40 min and 5 hrs 45 min., respectively. The above approximately corresponds to the residence time of burden in the furnace 7.5 - 6.8 hours. 4) On reaching the tuyere level, coke lumps can for some time participate in race ways, occasionally leaving the combustion zone and returning again into this zone or shifting into the neighbouring combustion zone. Coke descending below the tuyere level sinks into slag and iron, then rises again moving towards the oxidising zone of the hearth. It also can remain circulating for some time in front of tuyeres. The movement of coke in the hearth helps in mixing iron molten in various parts of the hearth. 5) The content of carbon dioxide in gas in various zones of the upper part of the stack depends not only on the coke-to-ore ratio in the given furnace zone, but also on the velocity of the

An Investigation of the Movement of Burden Materials in a Blast Furnace by Means of Radioactive Isotopes.

burden descent. With increasing velocity, the content of carbon dioxide in gas increases. The above work was carried out in co-operation with TsNIIChM (V.N. Afanas'yev, Engineer, P.L. Gruzin, Doctor of Physico-mathematical Sciences, S.V. Zemskiy, Engineer and V.V. Mural', Technician) under the general direction of I.P. Bardin, Academician.
There are 14 figures.

ASSOCIATION: **Metallurgical Plant imeni Dzerzhinskiy (Metallurgicheskiy zavod im. Dzerzhinskogo)**

AVAILABLE: Library of Congress

Card 6/6

SOV/137-58-9-18530

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 49 (USSR)

AUTHOR: Polovchenko, I.G.

TITLE: Improvement of the Smelting Technology of Cast Irons Intended for Production of Steel in a Southern Plant (Usovershenstvovaniye tekhnologii vyplavki peredel'nykh chugunov na yuzhnom zavode)

PERIODICAL: V sb.: Issled. domennogo protsessa. Moscow, AN SSSR, 1957, pp 234-255

ABSTRACT: The first measure in the effort to improve the technology of smelting of Bessemer cast iron (BCI) involved the reduction of the alkalinity of slag ($CaO:SiO_2$) from 1.45 to 1.35; this was coupled with a more drastic increase in the quantity of ore charged on top of the coke during the firing of the furnace. Subsequently, as the limits of the Si and Mn contents were narrowed down and the total content of the Si and S in the BCI diminished, it became necessary to improve the smoothness of furnace operation. This was achieved by means of painstaking selection of methods of charging of materials, by controlling the distribution of the materials and gases in the furnace, by increasing the consumption of sinter and improving

Card 1/2

SOV/137-58-9-18530

Improvement of the Smelting Technology of Cast Irons (cont.)

its quality, and by employing moist blowing and increased gas pressures. In order to increase the mobility of the primary slags, dolomitized limestone was introduced into the charge. Practical experience has shown that during smelting of BCI in conditions peculiar to southern plants the alkalinity of slag may be reduced to a value of 1.25, at an MgO content of 6%, without impairing the quality of the BCI. A marked improvement in the operation of the furnaces was observed when fluxed sinter was introduced into the charge. As a result it was possible to improve the volumetric utilization coefficient during smelting of BCI from 0.93-0.95 to 0.71-0.72 (!), and reduce coke consumption from 1.02-1.00 to 0.85 t per ton of cast iron. Until 1955 the plant was engaged in smelting of open-hearth cast iron (OHCI) containing 2.2-2.5% Mn on slags with an alkalinity of 1.15. With progressive impoverishment of the Fe and Mn ores the production figures of the furnaces were significantly impaired together with the figures on consumption of coke and S content in the OHCI. Attempts of smelting low-manganese OHCI on magnesian slags have demonstrated that in order to achieve a low S content it is imperative that the alkalinity of the slag be increased to a value of 1.30 and, in the case of $(CaO+MgO)/SiO_2$, to a value of 1.45. A radical improvement of the conditions of smelting of OHCI at the southern plants requires a concentration of Krivoy Rog Fe ores to a degree which would ensure an output of slag not exceeding 650-700 kg per ton of cast iron. 1. Steel--Production 2. Industrial production F. K.
Card 2/2 --Development 3. Cast iron--Applications 4. Cast iron--Test results

5(18) PHASE I BOOK EXPLOITATION SOV/1246

Polovchenko, Ivan Gavrilovich

Dvizheniye shikhtovykh materialov i gazov v domennoy pechi (Movement of Charge Materials and Gases in the Blast Furnace), Khar'kov, Metallurgizdat, 1958. 162 p. 2,500 copies printed.

Ed.: Krasavtsev, N.I., Ed. of Publishing House: Liberman, S.S.; Tech. Ed.: Andreyev, S.P.

PURPOSE: This book is intended for scientific and technical personnel at research institutes and plant laboratories; it may also be useful to production engineers.

COVERAGE: The book generalizes the results of an investigation of the movement of charge materials and gases in the blast furnace. It is stated that new and original methods were employed in conducting the investigation. Recommendations are given regarding the use of radioactive isotopes for studying and controlling the blast-furnace process, for improving methods of regulating furnace operations, and for achieving top performance. No personalities are

Card 1/4

mentioned. There are 72 references, of which 57 are Soviet, 9 German, and 6 English.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

Card 4/4

GO/gmp
3-24-59

SOV/133-59-3-3/32

AUTHORS: Polovchenko, I.G. and Vasil'yev, G.A., Candidates of Technical Sciences, Afanas'yev, V.N., Uzlyuk, V.N. and Berin, A.L., Engineers

TITLE: Radiometric Control of the Stock Line Level in a Blast Furnace (Radiometricheskiy kontrol' urovnya materialov v domennoy pechi)

PERIODICAL: Stal', 1959, Nr 3, pp 204 - 205 (USSR)

ABSTRACT: A description of an experimental radiometric stock level indicator is given. Its operation is based on the irradiation of the working volume of the furnace throat by two radioactive sources (Co^{60} of 500 millicurie each) and measuring of the degree of absorption of the radiation by the burden with counters (enclosed in water-cooled tubes) distributed in vertical rows from the four sides of the throat (Figures 1 and 2). This indicator was installed on a blast furnace at the Dzerzhinskiy Works and its operation was compared with the mechanical stock level indicators. It was found that in general stock level measuring rods indicate a stock level lower than the actual level of the stock in the furnace. The new stock level indicator showed clearly non-uniformity of the burden descent along the periphery of the furnace and the

Card1/2

Radiometric Control of the Stock Line Level in a Blast Furnace

variability of the position of the maximum rate of the descent along the periphery. The most stable rate of burden descent was found to be at the side of the tapping hole (tuyeres over the tapping holes were of a smaller diameter) and the highest rates of descent were observed from the sides of the slag notches. The radiometric indicator was developed by the Ukrainskiy institut metallov (Ukrainian Institute of Metals) in co-operation with TsNIIChM. It is planned to produce an industrial type of the apparatus with improved recording instruments. There are 2 figures and 2 Soviet references.

VOLOVIK, G.A.; POLOVCHENKO, I.G.; CHECHURO, A.N.

Conditions of tapping the smelting products and the desulfuration processes in the furnace. Metallurg 8 no.10:4-8 O '63. (MIRA 16:12)

SOV/133-59-3-6/32

AUTHORS: Polovchenko, I.G., Candidate of Technical Sciences, Afanas'yev, V.N., Uzlyuk, V.N. and Berin, A.L., Engineers

TITLE: Radiometric Control of the Size Distribution of Skip Coke (Radiometricheskiy kontrol' kuskovatosti skipovogo koksa)

PERIODICAL: Stal', 1959, Nr 3, p 211 (USSR)

ABSTRACT: During an investigation of the absorption of γ radiations by the individual components of burden materials carried out at the Dzerzhinskiy Works, it was found that the degree of absorption depends more on the bulk density of a material than on its chemical and mineralogical composition. As the bulk density of coke is related to its size distribution, TsNIIChM developed an experimental apparatus for the control of the size distribution of coke as charged into skips. One of the coke-weighing funnels is irradiated from one side with Co^{60} (activity 300 millicurie) and the counter situated on the opposite wall recorded the degree of absorption by coke of the γ radiation (Figure 1). A sample of such record is shown in Figure 2. The degree of absorption for each skip of coke is recorded. A comparison of the recorded absorption with the furnace operating indices has shown that the absorption of γ radiation by coke varied from 5 to 12.7% of the mean

Card1/2

Radiometric Control of the Size Distribution of Skip Coke

value, whereupon at a minimum absorption burden load per ton of coke was 2 540 kg and at a maximum absorption it decreased to 2 210 kg/t, i.e. by 13%.
There are 2 figures and 2 Soviet references.

Card 2/2

SOV/133-58-12-3/19

AUTHORS: Shchirenko N.S., Doctor of Technical Science; Professor; Polovchenko I.G. and Dobrov V.P., Candidates of Technical Science; and Labkovskiy A.M., Engineer.

TITLE: An Experience in the Operation of a New Type of Burden Distributor (Opyt raboty novogo raspredelitelya)

PERIODICAL: Stal', 1958, Nr 12, pp 1066-1071 (USSR)

ABSTRACT: A new type of burden distributor with a rotating intermediate funnel (Fig 1) proposed by N.S. Shchirenko, was tested on a blast furnace with a working volume of 997 m^3. The characteristic feature of the distributor is that the hopper of the small bell remains stationary, while the uniformity of the distribution of materials on the small bell is attained by a rapidly rotating funnel situated over the small bell hopper, during the discharge of materials from skips. During the development of the new distributor intermediate funnels with various outlets were tested, the best results being obtained when the rotating funnel had two outlets. Observations on the distribution of materials before blowing in (Fig 3) and during furnace operation as judged by the distribution

Card 1/2

An Experience in the Operation of a New Type of Burden Distributor

of CO_2 in the top gas along the furnace diameter (Figs 4 and 5) and burden descent on the new distributor gave a more uniform distribution than the usual type of the distributor. During 10 months of the furnace operation with the new distributor satisfactory results were obtained.
There are 6 figures.

POLOVCHENKO, I. G.

18

4E2c

Injection of Powdered Fuel into the Blast-Furnace Hearth. V. I. Lagunov, G. G. Gresbkin, I. G. Polovchenko, A. A. Sorokin, and I. N. Kanbasevich. (Stal', 1956, (6), 496–502). [In Russian]. An account is given of trials on a relatively small (427 m³ useful volume) blast furnace smelting ferro-silicon in which low-grade anthracite dust was injected through the tuyeres with the aid of a special installation. In some of the trials gas sampling of the combustion zone with and without the injection was carried out. 20 t/hr of the powdered fuel could be injected without difficulty, equivalent savings in coke being achieved. In spite of the high (16–18%) ash and sulphur (1·7–3%) contents of the fuel the ferrosilicon quality improved and the furnace continued to function smoothly.—S. K.

RZ Mag

POLOVCHENKO, I. G.

Research Work at the Dzerzhinskii Works. M. P. Kuz'-
matsov, G. N. Rekhlis, I. G. Polovchenko, T. A. Kramnik,
B. I. Emlik, V. I. Baptizmanskii, N. G. Korochan and B. L.
Polotsev. (*Stal'*, 1958, (8), 749–750). [In Russian]. The
central works laboratory has helped in the adoption of low-
manganese pig iron production and utilization, developed a
standard sinter-reducibility determination method, contri-
buted to improved Bessemer steel and rolled strip quality
and to fuel economy.—S. K.

10
4E2c

RS amy

POLOVCHENKO, I. G.

Blowing coal dust into the hearth of blast furnaces. V. I. Loginov, G. G. Oreshkin, I. G. Polovchenko, A. A. Sorokin, and I. N. Kardasevich (Derzhinskii Met. Plant, Dneptoderzhinsk). *Stal'* 16, 675-82(1956); cf. *C.A.* 50, 10629a.—Powd. anthracite refuse carrying 18% ash and 1.7–3.0% S was blown into the hearth of a 427-cu. m. furnace through 1–4 tuyères from a tank. In a 4-day run up to 30 tons of dust was blown in 1 hr. while raising blast temp. to 800° in place of conventional 700° and appropriately adjusting the coke charge. The furnace, which ran on FeSi, operated smoothly, coke consumption and S decreased, while slag basicity and Si content of FeSi increased. The dust replaced 6–6% of coke with its equal amt. It began to burn directly after leaving the tuyère nozzle, and the temp. of the combustion zone decreased inwardly. J. D. Cat

SOV/133-59-9-4/31

AUTHOR: Polovchenko, I.G., Candidate of technical sciences

TITLE: A Study of the Descent of Burden Materials and Mixing of Metal in a Blast Furnace Using Radioactive Isotopes

PERIODICAL: Stal', 1959, Nr 9, pp 782-784 (USSR)

ABSTRACT: These are remarks on the previously published paper by A.A.Cherepivskiy and A.M.Skrebtsov, Stal', 1958, Nr 8. The present author considers that in studying burden movement the use of steel and carbon ampules containing radioactive elements of specific gravity corresponding to the lump of material they represent (coke, ore, sinter etc) gives better results than the incorporation of the radioactive element into a lump of the actual material or saturation of the whole lump with the radioactive indicator. The conclusion of the original authors, about the diffusion nature of the distribution of an indicator in the metal in the hearth, the present author considers to be less proven than that the mixing takes place due to convection and the movement of coke

SOV/133-59-9-4/31

A Study of the Descent of Burden Materials and Mixing of Metal in a Blast Furnace Using Radioactive Isotopes

in the hearth. There are 12 references, 11 of which are Soviet and 1 German.

ASSOCIATION: Zavod im. Dzerzhinskogo (Works imeni Dzerzhinskiy)

Card 2/2

POLOVCHENKO, I. G.

3641. SERVICE OF CARBON BLOCKS IN THE PAD AND HEARTH OF BLAST FURNACES. Polovchenko, I.G. (Stal (Steel; Moscow), 1955, (10), 891-894). The behaviour of various sections of the hearth structure of 1386 cu.m blast furnaces as revealed by the appearance in the pig iron of radioactive material from capsules built into the carbon and brick is discussed. The information is supplemented by the results of temperature measurements at various points in the foundations. Graphite and steel capsules were used for the carbon and brick sections, respectively, and a remote indicator of the radioactivity was used in one furnace. In a furnace making foundry iron fairly rapid loss of the carbon and pad was observed, but comparison with a similar furnace with a brick pad showed that loss in the latter was faster.

I.S.I.

Name: POLOVCHENKO, I. G.

Dissertation: The movement of charge materials and gases in a blast furnace

Degree: Cand Tech Sci

Defended at

Affiliation: Min Higher Education UkSSR, Dnepropetrovsk Order of Labor Red Banner Metallurgical Inst

Publication

Defense Date, Place: 1956, Dnepropetrovsk

Source: Knizhnaya Letopis', No 45, 1956

POLOVCHENKO, I. G.

Distr: 4E2c 18 19

Study of the motion of blast-furnace burden by means of radioactive isotopes. I. G. Polovchenko. *Stal'* 17, 1057–68 (1957).—The motion of the charge in a furnace was investigated by placing at the stock line 40 × 60 or 50 × 70-mm. graphite or steel capsules contg. Co^{60} and having sp. grs. of 1–1.5 and 4 to correspond to coke and ore portions of the charge, resp., and following their descent continuously by radiation counters inserted from the side of the furnace and supported in water-cooled pipes placed at 8 levels of the furnace. Expt'l. practice and its results are minutely detailed. The rate of descent of charge components in the upper portion of the shaft is different, those close to the walls descend the slowest, while the max. rate is observed about 600 mm. from the walls, occasionally along the furnace axis. Individual pieces frequently preceed the mass of the charge and tend here toward the axis of the furnace. At lower levels, where the cross section is much larger, the zone of faster descent follows the furnace lines and individual rapidly moving pieces tend now towards the walls. A horizontal displacement of individual pieces of the charge, caused by the different rate of descent in adjoining concentric layers, reaches 1270–2500 mm. Ore advance over coke between the stock line and the fusion zone is much smaller than the av. ore advance down to the tuyere level. After melting, the ore portion of the charge moves much faster than the coke and reaches the tuyeres in half of the time. This time can be called, in advance. On arriving at the tuyere level, pieces of coke can have for a while a circular motion, occasionally getting outside of the oxidation zone, returning to it, or even passing to the next ones.

J. D. Gat

3
1
1

AFANAS'YEV, V.N., kand.tekhn.nauk; BALYUK, F.B., inzh.; BERIN, A.L., inzh.; VASIL'YEV, A.G., kand.khimicheskikh nauk; GRUZIN, P.L., doktor tekhn.nauk; KOROBEYNIK, V.F., inzh.; POLOVCHENKO, I.G., kand.tekhn. nauk; SMIRNOV, V.G., inzh.; UZLYUK, V.N.

Control of the level of the blast furnace charge by means of gamma rays. Trudy Ukr. nauch.-issl. inst. met. no.7:51-80 '61. (MIRA 14:11)

(Blast furnaces--Equipment and supplies)
(Gamma rays--Industrial applications)

POLOVCHENKO, I.G.

LOGINOV, V.I., kandidat tekhnicheskikh nauk; GRESHKIN, G.G., kandidat tekhnicheskikh nauk; POLOVCHENKO, I.G., inzhener; SOROKIN, A.A., inzhener; KARDASEVICH, I.N., inzhener.

Blow-in of pulverized coal fuel to hearths of blast furnaces. Stal' 16 no.8:675-682 Ag '56. (MLRA 9:10)

1.Zavod Dzerzhinskogo i Dneprodzerzhinskiy metallurgicheskiy institut.
(Blast furnaces) (Coal, Pulverized)

POLOVCHENKO, T. G.

9538 Performance of Carbon Blocks in Hearth Walls and Bottom of Blast Furnace. I. G. Polovchenko. *Henry Brutcher Translation No. 3616*, 11 p. (Abridged from *STAL*, v. 15, no. 10, 1955, p. 891-894.) Henry Brutcher, Altadena, Calif. Previously abstracted from original. See item 1360, v. 5, Feb. 1956.

POLOVCHENKO, I.G., kand.tekhn.nauk; AFANAS'YEV, V.N., inzh.; UZLYUK, V.N., inzh.; KRIVOSHEYEV, A.A., inzh.; YAROSHEVSKIY, N.D., inzh.

Investigation and control of the erosion of blast furnace linings. Stal' 20 no.9:769-774 S '60. (MIRA 13:9)

1. Zavod im. Dzerzhinskogo i TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.
(Blast furnaces--Maintenance and repair)
(Refractory materials)

POLOVCHENKO, I.G., kand. tekhn. nauk; UZLYUK, V.N., inzh.

Device for the radiometric measurement of the level of charge materials in a blast furnace. Stal' 25 no.7:593-595 Jl '65. (MIRA 18:7)

1. Metallurgicheskiy zavod im. Dzerzhinskogo.

Polovchenko, I. G.

Carbon blocks performance in the hearth and bottom of a blast furnace. I. G. Polovchenko. *Stal'* 15, 891-4 (1955).—The bottom of a 1386-cu. m. blast furnace was lined with a 1590-mm. layer of carbon blocks placed over firebricks and the lower part of its hearth walls was lined with them for 1600 mm. Radioactive indicators placed at different depths of carbon layer and brick bottom showed that the upper layer of carbon blocks was gone in 25 days after blowing in and all of it was gone 4 days later. The firebrick bottom was still in use 3 years later, its temp. reaching an equil. at 745–750° after one year and 6190 mm. under the designed surface level of the bottom. J. D. Cat

POLOVCHENKO, I. G.

5

Blowing of powdered coal through tuyères into the hearth of blast furnaces. V. I. Logunov, G. C. Orekhkin, I. G. Polovchenko, A. A. Sorokin, and I. N. Kardanovich. (Met. Inst. and Works, Dneprodzerzhinsk). *Metallurg*, 1956, No. 4, 10–12.—Powd. anthracite coal contg. 16–19% ash and 1.7–3% S, heat content 6000 cal./kg., was successfully blown-in in a small expti. furnace smelting iron and ferrosilicon. The ash contained <50% SiO_2 and 23% Al_2O_3 and was relatively easily melted; 92–4% of the coal particles were less than 0.080 mm. Blowing at the rate of 1000 kg./hr. (16% moisture) of powd. coal with 0.5% of the total air stream with a mean temp. of 800° was necessary to raise the stream temp. 50–60°. The Si concn. of iron did not change, while S dropped from 0.03–0.04 to 0.02–0.025%. Blown-in pulverized coal can replace 5–6% of total coke.

V. N. Bednarski

POLOVCHENKO, I.G., kand.tekhn.nauk; GEL'DFAND, V.I.

Automatic correction of the deviations of mixture batch weights in charging open-hearth furnaces. Avtom.i prib. no.1:18-21 Ja-Mr '62. (MIRA 15:3)

1. Dneprovskiy metallurgicheskiy zavod im. Dzerzhinskogo (for Polovchenko). 2. Ukrgipromez (for Gel'dfand).
(Open-hearth furnaces) (Automatic control)

POLOVCHENKO, I. G.

2000

6555* Improvements in the Technology of Melting Bessemer Pig Iron. **Usovershenstvovanie tekhnologii vyplavki bessemerovskogo chuguna.** (Russian.) I. G. Polovchenko. *Stal'*, v. 16, no. 1, Jan. 1956, p. 7-15.

MG

Research and practice from 1949 to 1955, using Krivoi-Rog ores and agglomerates, with Donets coke as the fuel. Operational details including blowing and charging. Variations in slag and pig iron compositions. Tables.

Of

LFH

POLOVCHENKO, I.G., inzh.

Investigation of burden movement in blast furnaces by means of radioactive isotopes. Stal' 17 no.12:1057-1068 D '57. (MIRA 11:1)

1. Metallurgicheskiy zavod im. Dzerzhinskogo.
(Blast furnaces)

LOGINOV, V.I., kandidat tekhnicheskikh nauk; ORESHKIN, G.G., kandidat tekhnicheskikh nauk; POLOVCHENKO, I.G., inzhener; SOROKIN, A.A. inzhener; KARDASEVICH, I.N., inzhener.

The blow-in of pulverized coal through tuyeres to the blast furnace hearth. Metallurg. no.4:10-12 Ap '56. (MLRA 9:9)

1.Dneprodzerzhunskiy metallurgicheskiy institut i zavod imeni Dzerzhinskogo.
(Dneprodzerzhinsk--Blast furnaces) (Coal, Pulverized)

POLOVCHENKO, I.G., inzhener.

Improvements in the technology of smelting Bessemer pig iron. Stal' 16 no.1:7-15 '56. (MLRA 9:5)

1. Zavod imeni Dzerzhinskogo.
(Bessemer process)

POLOVCHENKO, I.G., inzhener;

The service of carbon refractories in blast furnace hearth bottoms and hearths. Stal' 15 no.10:891-894 O '55. (MLRA 9:1)

1.Zavod imeni Dzerzhinskogo.
(Dneprodzerzhinsk--Blast furnaces) (Refractory materials)

POLOVCHENKO, I.G.; PEVTSOV, V.P.; YABLONSKAYA, L.V., redaktor; MIKHAYLOVA, V.V., tekhnicheskiy redaktor.

[Work methods of leading blast furnace brigades in the Dzerzhinskii Metallurgical Plant] Metody raboty peredovykh brigad domennykh pechei metallurgicheskogo zavoda im.Dzerzhinskogo. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1956. 113 p. (MLRA 9:6)
(Blast furnaces)

GOTLIB, A.D., prof.; POLOVCHENKO, I.G., kand.tekhn.nauk; LEVCHENKO, V.Ye., inzh.; CHECHURO, A.N., inzh.; KHARCHENKO, N.M., inzh.; YASHIN, Yu.F., inzh.

Blast furnace operations with use of screened sinter. Biul. TSIICHM no.2:12-15 '61. (MIRA 14:9)
(Blast furnaces)

GOTLIB, A.D., doktor tekhn. nauk; GIMMEL'FARB, A.A., kand. tekhn. nauk; YEFIMENKO, G.G., kand. tekhn. nauk; LAPA, A.M., kand. tekhn. nauk; POLOVCHENKO, I.G., kand. tekhn. nauk; GRISHKO, V.A., inzh.; KHARCHENKO, N.M., inzh.; CHECHURO, A.N., inzh.

Automatic control of temperature conditions in a blast furnace. Stal' 25 no.7:585-589 Jl '65. (MIRA 18:7)

1. Dnepropetrovskiy metallurgicheskiy institut i metallurgicheskiy zavod im. Dzerzhinskogo.

KICHKO, Vasiliy Denisovich; POLOVCHENKO, Ivan Gavrilovich; KRASAVTSEV, M.I., redaktor; SIRENKO, S.M., redaktor; ANDREYEV, S.P., tekhnicheskiy redaktor

[Tapping hole of a blast furnace and its management] Chugunnaia letka domennoi pechi i ukhod za neiu. Khar'kov, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 119 p. (MLRA 9:3)
(Blast furnaces)

SMOLYAK, V.A., kand.tekhn.nauk; YASHIN, Yu.F., inzh.; UZLYUK, V.N., inzh.; Prinimali uchastiye: BALYUK, F.B.; KONOVALOV, M.S.; SEL'DYAKOV, M.I.; TREGUB, N.G.; POLOVCHENKO, Yu.I.; KHODOROVSKIY, S.S.; CHERNYY, A.A.; YEVSEYEV, A.N.; KOVALENKO, I.A.

Radiometric investigation of blast furnace tuyere zones. Stal' 21 no.9:777-782 S '61. (MIRA 14:9)

1. Dneprodzerzhinskiy metallurgicheskiy zavod-vtuz i Zavod im. Dzerzhinskogo.

(Blast furnaces)

POLOVENKO, Ivan Savvich; DMITRIYEVA, L.A., red.; KLYUCHEVA, T.D., tekhn.red.

[How to get an abundance of cheap fodder] Kak sozdaetsia obilie deshevykh kormov. Moskva, Izd-vo "Sovetskaia Rossiia," 1961. 53 p. (MIRA 14:4)
(Feeds)

TULUPNIKOV, L.A.; SOLOV'YEV, A.V.; BATOVA, N.T.; GAVRILOV, V.I., kand. ekonom.nauk; SHIMKO, N.I.; POLOVENKO, I.S., kand.ekonom.nauk; POTAPOV, Kh.Ye., red.; OVCHINNIKOV, N.G., red.; POLOMAREVA, A.A., tekhn.red.

[Problems pertaining to long-range planning and systems of management on collective and state farms] Voprosy perspektivnogo planirovaniia i sistemy vedeniia khoziaistva v kolkhozakh i sovkhozakh. Moskva, Gosplanizdat, 1960. 681 p.

(MIRA 14:3)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut ekonomiki sel'skogo khozyaystva. 2. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni V.I.Lenina; direktor Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for Tulupnikov). 3. Zamestitel' direktora Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for Gavrilov). 4. Rukovoditel' otdela Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for Polovenko).

(Collective farms) (State farms)

POLOVENKO, Ivan Savvich;KOSTIN, V.F., red.

[Economics of the production of cheap feeds on collective and state farms] Ekonomika proizvodstva deshevykh kormov v kolkhozakh i sovkhozakh. Moskva, Ekonomika, 1964. 247 p. (MIRA 17:9)

POLOVENKO, Ivan Savvich, kand.tekhn.nauk; BIRYUKOV, V.V., red.; SAYTANIDI, L.D., tekhn.red.

[Potentials for increasing labor productivity on collective and state farms] Rezervy povysheniia proizvoditel'nosti truda v kolkhozakh i sovkhozakh. Moskva, Izd-vo M-va sovkhozov SSSR, 1957. 55 p. (MIRA 11:2)

(Labor productivity) (Farm management)

S.C.G. POLOVENKO, I.S.

1. Planting

Preliminary results of nest sowing of kok-saghiz on Michnov Experimental Basis. I. S. POLOVENKO (Proc. Lenin Acad. Agric. Sci. U.S.S.R., 1943, No. 2, 21-3; Hort. Abs., 1943, **13**, 100). The report gives the data of trials of hand nest sowing of Tok-saghiz as propounded by T. D. Lysenko (see above abstract). The results show the superiority in the number and weight of roots and the general weight of plants of the plots hand sown over those sown in the ordinary way by a drill.
1228.542

1946

SHIMKO, N.I.; POLOVENKO, I.S., kand.ekonom.nauk, starshiy nauchnyy sotrudnik; BANNIKOV, N.A., red.; TERESHCHENKO, N.I., red.; ZUBRILINA, Z.P., tekhn.red.

[Overtake and surpass the United States in the output of livestock products] Dognat' i peregnat' SShA po proizvodstvu produktov zhivotnovodstva. Izd.2., dop. i perer. Moskva, Gos. izd-vo sel'khoz.lit-ry, 1959. 500 p. (MIRA 12:11)

1. Rukovoditel' otdela opornykh punktov i korrespondentskoy seti Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for Shimko).
(Stock and stockbreeding)

SHIMKO, N.I., POLOVENKO, I.S.

[Overtake and surpass the U.S.A. in the output of livestock products] Dognat' i peregnat' SSHA po proizvodstvu produktov zhivotnovodstva. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1958. 469 p. (MIRA 11:10)

(Stock and stockbreeding)

POLOVENKO, I., kand.ekon.nauk

Forage and the cost of meat and milk. Nauka i pered.op. v sel'khoz. 9 no.3:59-62 Mr '59. (MIRA 12:5)
(Stock and stockbreeding) (Feeding and feeding stuffs)